

REMARKS

Claims 1-51 were pending. Claim 4 has been canceled. Claims 1-3 and 5-51 will remain after this amendment.

The Office Action objected to the incorporation by reference on page 1 of the specification. Co-assigned patent application no. 09/855,305 has now issued as US Pat. No. 6,546,182. Co-assigned patent application no. 10/001,092 has now issued as US Pat. No. 6,661,962. The specification has been amended.

Claim 51 has been amended to overcome the 35 USC 112 rejection.

Applicants thank the Patent Office for indicating subject matter in Claims 7, 25-32, 37 and 38 would be allowable if rewritten in independent form.

Claims 1-5, 8, 9, 11-13, 16-18, 21-24, 41, 46, 47, 49 and 50 stand rejected under 35 USC 102(b) over Sorce (5,461,515). Claims 6, 10, 14, 15, 19, 20, 33-36, 39, 40 and 42-45 stand rejected under 35 USC 103(a) over Sorce (5,461,515). The Office Action (page 3) stated "Sorce discloses a passive alignment assembly configured to support an optical element (a mirror) to a predetermined position. ... The Sorce connecting structure constrains the payload in six degrees of freedom (col. 2, lines 60-62)."

Sorce, however, does not disclose a "passive alignment assembly configured to support at least one optical element to a pre-determined position" and "wherein the connecting structure constrains the payload in about five to about six degrees of freedom with respect to the base," as recited in Claim 1. Sorce teaches away from "passive alignment" in col. 1, lines 21-22: "Six struts are employed, in order to accommodate the secondary mirror's movement in six degrees of freedom." Also col. 2, lines 60-63 of Sorce state "the present invention discloses an assembly for mounting an optical element for six-degree of freedom movement relative to a support structure." The "secondary mirror 16" in Sorce has freedom to move in six degrees. In contrast, Applicants' Claim 1 recites a unique "passive alignment assembly configured to support at least one optical element to a pre-determined position ... wherein the connecting structure constrains the payload in about five to about six degrees of freedom with respect to the base." Applicants

respectfully submit that Claim 1, and its dependent Claims 2-3 and 5-47, should be allowable over Sorce.

For Claim 6, Sorce does not teach a "payload" that is "formed from substantially flat silicon wafers." The reference number "16" in Sorce refers to a "secondary mirror 16." Sorce Fig. 2; col. 1, line 18. Sorce does not suggest that the "support legs 28-38" in Fig. 2 and col. 1 are "formed from substantially flat silicon wafers," as in Claim 6. Thus, Claim 6 should be allowable over Sorce.

For Claim 8, Sorce does not teach a "payload" that comprises a "substantially planar" wafer. The reference number "16" in Sorce refers to a "secondary mirror 16." Sorce does not suggest that the "support legs 28-38" in Fig. 2 and col. 1 "comprise substantially planar wafers," as in Claim 8. Thus, Claim 8 should be allowable over Sorce.

For Claim 9, Sorce does not teach a "payload" that comprises a "substantially circular" ring. The reference number "16" in Sorce refers to a "secondary mirror 16." Sorce does not suggest that the "support legs 28-38" in Fig. 2 and col. 1 comprise a "substantially circular" ring, as in Claim 9. Thus, Claim 9 should be allowable over Sorce.

For Claim 10, Sorce discloses freedom of movement, not constraint as stated above. Moreover, Sorce does not disclose constraint with an accuracy of "six degrees of freedom comprise three orthogonal translational positions constrained to less than one micron and three orthogonal angular positions constrained to less than five arcseconds," as in Claim 10. Such high accuracy is made possible by Applicants' "lithographic micromachining process" to make the base, payload and connecting structure in Claim 5. Claim 10 has been amended to depend from Claim 5.

For Claims 14 and 15, Sorce does not teach a set of connecting elements that "enforces planarity" or "increases bending stiffness in the base and payload." The Office Action does not specify how Claims 14 and 15 would be obvious in view of Sorce.

For Claim 20, there is nothing in Sorce that suggests a connecting element can be "configured as an optical bench configured to support at least one optical element." Sorce only

discloses two optical elements – mirrors 14 and 16. Sorce does not teach that the “struts 18” can support optical elements.

Claim 49 has been amended to recite “wherein the connecting structure constrains the payload in at least one degree of freedom with respect to the base, such that a trajectory of the payload relative to the base is relatively unconstrained in less than six degrees of freedom.” This is different from Sorce, which teaches six degree of freedom movement. In other words, Sorce teaches away entirely from passive alignment.

Claim 48 stands rejected under 35 USC 103(a) over Barthel (6,071,143). Barthel discloses a frame to hold circuit boards. Barthel does not teach a “payload plate being configured to position at least one optical element,” as in Claim 48.

Applicants respectfully request allowance of the pending Claims 1-3 and 5-51. Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,



Alexander C. Chen
Reg. No. 45,591

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Fish & Richardson P.C.
12390 El Camino Real
San Diego, California 92130
Telephone: (858) 678-5070
Facsimile: (858) 678-5099